#2-What is Agile? Why Agile?

Module TLO:
Given a DoD program involved in software development, the student will recognize situations where applying agile development methods results in a positive benefit to the speed and efficiency of a software development effort.

Subtopics

- 1- Agile motivation for software / systems
- 2- Agile tenets and principles
- 3- Agile as a risk mitigation strategy
- 4- Recent regulations related to Agile
- 5- Industry trends in the use of Agile

ELO

- ELO 1 – Recognize development methods as Agile and not Agile (BL 1)
- ELO 2 – Recognize pros and cons of engaging with Agile in a contracted setting (BL 1)
- ELO 3 – Recognize conditions in the DoD environment that make it appropriate (or inappropriate) to consider Agile (BL 1)

ELO Mapping to Sub-topics

Subtopic	ELO(s)
1- Agile motivation for software / systems	ELO 1 – Agile or not ELO 3 – Conditions for Agile
2- Agile tenets and principles	ELO 1 – Agile or not
3- Agile as a risk mitigation strategy	ELO 2 – Agile pros & cons
4- Recent regulations related to Agile	ELO 3 – Conditions for Agile
5- Industry trends in the use of Agile	ELO 3 – Conditions for Agile

Subtopic 1: Agile motivation for software / systems

- What is Agile?
  - 30,000-foot introduction to steps in waterfall software development
  - 30,000-foot introduction to Agile software development through iterations
  - Important: Just design/build/test software tasks, not DoDI 5000.02 or V model detail
- When should Agile be considered?
  - Increase operational tempo to deliver more frequently to the field
  - Agile principles are consistent with lean engineering
  - Problem and solution space lack definition
- When should it not be considered?
  - Sufficient user/stakeholder involvement is key
- Major Takeaways
  - Major Takeaway 1: Agile is not a silver bullet, but there are conditions that could make it appropriate for use in a program
  - Major Takeaway 2: Agile methods and lean engineering work well together

Subtopic 2: Agile tenets and principles

- Agile Manifesto
  - **Individuals and interactions** over processes and tools
  - **Working software** over comprehensive documentation
  - **Customer collaboration** over contract negotiation
  - **Responding to change** over following a plan
- 12 Agile principles (probably best to insert a slide that has them on)
- Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
- Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

Subtopic 2: Agile tenets and principles (cont.)

- Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
- Business people and developers must work together daily throughout the project.
- Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
- The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
- Working software is the primary measure of progress.
- Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
- Continuous attention to technical excellence and good design enhances agility.

Subtopic 2: Agile tenets and principles (cont.)

- Simplicity--the art of maximizing the amount of work not done--is essential.
- The best architectures, requirements, and designs emerge from self-organizing teams.
- At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.
- Major Takeaways:
  - Major Takeaway 3 – Agile Manifesto is not a license to de-value traditional approaches
  - Major Takeaway 4 – Agile principles are the foundation of “what is Agile” more than any one method or practice

Subtopic 3: Agile as a risk mitigation strategy

- The Agile methodology approach recognizes that requirements WILL change and plans in advance for it
- Operational tempo that delivers software raises visibility of project issues and risks
- Key to risk mitigation is establishing and enforcing the definition of done
- Major Takeaway:
  - Major Takeaway 5 – Agile projects increase visibility of actual project completion instead of waiting for a missed transition or software lifecycle event.

Subtopic 4: Recent regulations related to Agile

- US Digital Services Agency – Digital Playbook
- GSA – 18F Digital Services
- DoDI 5000.02 acquisition lifecycle models
- CJSCI 3170.01I JCIDS manual / IT Box
- Better Buying Power 3.0 tenets
- Major Takeaway:
  - Major Takeaway 6 – Although not explicitly called out yet in DoD acquisition policy, there are many more enablers to using Agile in DoD today than there were 5 years ago

Subtopic 5: Defense contracting trends in the use of Agile

- System integrators supporting DoD:
  - Agile is often used within the context of a traditional systems engineering / acquisition lifecycle, especially when introduced mid-contract
  - Sometime use of Agile principles begins in a covert way due to perception of organizational resistance
  - Agile projects and teams use metrics to manage efficient delivery
    - Strong ties between health of metrics and definition of done
    - Metrics support system integrator ability to produce Earned Value Management data
  - Industry partners are using established frameworks that scale Agile tenets to larger projects typical in Defense
  - Major Takeaway:
    - Major Takeaway 7 – Contractors are regularly proposing Agile as a solution approach regardless of government systems engineering methodology

Module 2 Assessment

- ELO 1 – Recognize development methods as Agile and not Agile
  - Match text descriptions of development methods to Agile/Not Agile
  - Drag and drop text descriptions of development priorities to Agile/Not Agile
  - Select Agile principles from multiple choice options
  - Select Agile methods that reduce risk from multiple choice options
- ELO 2 – Recognize pros and cons of engaging with Agile in a contracted setting
  - Select pros of Agile in contracting from multiple choice options
  - Select cons of Agile in contracting from multiple choice options
- ELO 3 – Recognize conditions in the DoD environment that make it appropriate (or inappropriate) to consider Agile
  - Drag and trop text descriptions of conditions under a heading of favors Agile or does not favor Agile